

ABSTRACT OF THE DISCLOSURE

A new system-level approach to managing the delivery of DC voltage and current. Several system level functions may be enabled without requiring separate ICs to perform those functions. Supervisory functions for a voltage converter may be performed by a central control module or chip that may be coupled to point-of-load voltage converters comprised in digital power management devices (DPMD) through a serial digital bus. The DPMDs may also use the high-speed serial digital bus to provide real-time feedback information to the central control module or chip. Single DPMDs may be combined together in a current sharing configuration in a “plug-and-play” fashion, where the control logic in each DPMD is capable of automatically establishing control loops required a multi-phase supply. Feedback necessary for establishing control may be transmitted across the digital bus coupling the devices. The supervisory functions may be included in each DPMD, which may communicate with each other over a serial digital bus, where the DPMDs singly or together may operate to perform control of their respective POLs, enabling configurations that do not require a central control module.